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Two Austral Dung Beetles New to the Virginia Fauna (Coleoptera: Scarabaeidae)

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ABSTRACT

The dung beetles *Phanaeus igneus* MacLeay and *Copris howdeni* Matthews & Halffter are reported from Virginia for the first time, representing northern range extensions from North Carolina and South Carolina, respectively. Both species were collected in remnant xeric pine-scrub oak sandhill communities, a rare habitat type in Virginia. Data also are provided on the distribution of all other members of both genera that occur in Virginia.

Key words: *Copris*, *Phanaeus*, Scarabaeidae, pine-scrub oak sandhill, Virginia.

Pitfall trapping is a proven technique for capturing terrestrial arthropods, particularly beetles and spiders. Employment of this sampling method by staff of the Virginia Department of Conservation and Recreation, Division of Natural Heritage (DNH) and the Virginia Museum of Natural History (VMNH) during the past two decades has yielded many new state records, even taxa new to science (e.g., Henry, 1993; Anderson et al., 1995; Hoffman, 2005, 2010). Herein we add two dung beetles (*Phanaeus igneus* MacLeay and *Copris howdeni* Matthews & Halffter) to the Virginia faunal list based on recent collections made by DNH staff in rare xeric pine-scrub oak sandhill habitats in the southeastern portion of the state, where both species reach their northernmost known range limits.

Phanaeus MacLeay

Phanaeus is a large genus of approximately 50 medium to large-sized (up to 25 mm in length) dung beetle species that occurs throughout the New World from the United States south to northern Argentina (Edmonds, 1994; Price, 2007, 2009). The members of this genus are well-known for their bright metallic coloration and pronounced sexual dimorphism. They have attracted the interest of collectors, taxonomists, and ecologists for well over a century, and have been the subjects of numerous studies documenting male-male competition (the males of some species possess enormous horns), bisexual cooperation (both sexes provision the nesting gallery), and nesting behavior (Price & May, 2009). Most species of *Phanaeus* are coprophagous, exploiting the fresh excrement of large herbivores and omnivores, and their nesting behavior (nidification) is characterized mainly by tunneling rather than the rolling behavior exhibited by other dung beetles (Price & May, 2009).

Phanaeus igneus MacLeay is a medium-sized, brilliantly colored dung beetle. The name *igneus* "firey" was bestowed to denote the metallic red color of the forebody (head and thorax) in (some but not all) males. The elytra are metallic green (or occasionally red). Some specimens are dark blue to black. The known range of this austral species extends from easternmost Louisiana and southern Florida (exclusive of the Keys) north to New Bern, Faison, and Southern Pines, North Carolina (Edmonds, 1994). The discovery of *P. igneus* in southeastern Virginia is documented by two series of

specimens taken by pitfall trapping:

Sussex Co.: Chub Sandhill Natural Area Preserve, burn unit #3 pitfall traps, 9 August 2002, C. Young (VMNH, 20). *City of Suffolk*: South Quay Pine Barrens, ca. 6 mi [10 km] SSE Franklin, 100 m N of canal, 1 July-5 August 2003, pitfall traps, S. M. Roble (VMNH, 15); same site, pitfall traps, 27 October 2005, S. M. Roble (VMNH, 5).

These records extend the known range of *P. igneus* approximately 200 km (125 mi) north of the New Bern, North Carolina locality.

Two other species of *Phanaeus* inhabit Virginia. Edmonds (1994) recorded *P. triangularis triangularis* (Say) from Jones Creek. This locality in Lee County in far southwestern Virginia was visited in the late 19th century by Henry G. Hubbard and Eugene A. Schwarz, two well-known entomologists who presumably made the collection. Surveys by DNH and VMNH staff throughout the state have not yielded additional specimens of this species and we are not aware of any Virginia collections obtained during the past century. Brimley (1938) cited records for *P. triangularis* in North Carolina as far north as Chapel Hill.

Phanaeus vindex MacLeay is typically metallic green and purple and closely related to *P. igneus* (Edmonds, 1994; Price, 2005). Dark blue to black specimens are rare. "Major" (large) males of *P. vindex* possess a substantial, elongate, recurved "horn" whereas *P. igneus* males have a shorter, straight horn (Edmonds, 1994). *Phanaeus vindex* is rather widely distributed in eastern and central United States south of 43°N latitude. Edmonds (1994) cited Virginia records (collected March-September) from 13 localities that fall within the following jurisdictions: Albemarle, Augusta [or Nelson], Bath, Campbell, Caroline, Dinwiddie, Fairfax, Grayson, Montgomery, Prince Edward, and Washington counties, and the cities of Suffolk and Virginia Beach. VMNH has records for Caroline, Henrico, Isle of Wight, King George, Mecklenburg, Montgomery, Nottoway, Pulaski, Rockingham, and York counties, and the City of Suffolk. SMR has also seen a live male from Prince William County.

Copris Geoffroy

Copris howdeni Matthews & Halffter is a poorly known, relatively large dung beetle that was originally described from Florida in 1959 (Matthews & Halffter, 1959; Matthews, 1961). Woodruff (1973) and Woodruff & Deyrup (1994) reported that it was very rare and apparently endemic to Florida, with confirmed records from only six counties in the southern half of that state, ranging from the central peninsula area (e.g., Highlands, Osceola, and Manatee counties) to Big Pine Key in the Florida Keys. Woodruff & Deyrup (1994) noted that the largest series of specimens was from the island site, and stated that repeated efforts to obtain more material at all other known sites had been unsuccessful. They described *C. howdeni* as a "particularly mysterious beetle" that is "almost never seen." Its habitat, habits, and hosts are unknown, although Woodruff & Deyrup (1994) concluded that it is presumably a dung feeder, though likely not confined to a particular vertebrate host. Previously, Woodruff (1982) had speculated that *C. howdeni* was "probably associated with dung of some rare vertebrate." He also recommended it for "Threatened" status in Florida. Harpootlian (2001) cited published records of this species from two counties in South Carolina that were obtained several decades earlier (and thus apparently overlooked by Woodruff & Deyrup [1994]) and noted a questionable record from Georgia.

The occurrence of *C. howdeni* in Virginia is documented by a series of 14 specimens (all deposited in VMNH) obtained at one of the two collection sites reported above for *P. igneus*:

City of Suffolk: South Quay Pine Barrens, ca. 6 mi [10 km] SSE Franklin, 100 m N of canal, 4 September 2002, uv, S. M. Roble and C. S. Hobson (1), 24 October-12 November 2002, pitfall trap, S. M. Roble (1), 4 April 2003, pitfall traps, S. M. Roble and A. C. Chazal (3), 6 August-16 September 2003, pitfall traps, S. M. Roble (3), 16 September-5 November 2003, pitfall trap, S. M. Roble (1), 4 November 2003, [uv?], S. M. Roble (2), 24 May 2004, uv, S. M. Roble (1); South Quay Pine Barrens, Area 52: 16 September-5 November 2003, pitfall trap (xeric site), S. M. Roble (1), 23 June 2003, uv (mesic site), S. M. Roble (1).

This record extends the known range of *C. howdeni* approximately 420 km (260 miles) north from McClellanville, South Carolina.

Two other members of the genus *Copris* have been recorded from Virginia. VMNH specimens were collected in the following political units:

Copris fricator (Fabricius): Alleghany, Augusta, Botetourt, Dickenson, Franklin, Halifax, Lee, Montgomery, Pulaski, Scott, Washington, and Wise counties, defining a basically western distribution in the state, at least at low to moderate elevations.

Copris minutus (Drury): Accomack, Caroline, Charles City, Cumberland, Dinwiddie, Fluvanna, Franklin, Greensville, Henrico, Henry, Isle of Wight, King George, Mecklenburg, Montgomery, Northampton, Prince William, Pulaski, Roanoke, Sussex, York, Washington, Westmoreland, and Wise counties, and the cities of Chesapeake, Suffolk, and Virginia Beach. The great majority of these sites lie east of the Blue Ridge.

Habitats

Chub Sandhill Natural Area Preserve borders the Nottoway River for more than 3 miles (5 km). It was established in 1995 by the Virginia Department of Conservation and Recreation, Division of Natural Heritage, and is owned and managed by that agency. The property was once the shore of an ancient estuary and now contains deep, sandy soils that support a remnant pine-scrub oak sandhill community dominated by loblolly pine (*Pinus taeda* L.) and southern red oak (*Quercus falcata* Michaux) (VDCR, 2006, 2010). A recent addition has nearly doubled the size of Chub Sandhill Natural Area Preserve to 1066 acres (431 ha). Current management efforts at the preserve include prescribed burning to restore the much reduced fire-maintained natural communities as well as extensive planting of longleaf pine (*Pinus palustris* Miller) seedlings in an effort to return this once-dominant tree to the area.

The South Quay pine barrens is another unique habitat in Virginia that is also worthy of conservation and protection. Situated near the confluence of the Blackwater and Nottoway rivers, like Chub Sandhill, it contains deep, sandy soils that support a xeric pine-scrub oak plant community. Our pitfall and blacklight traps at the South Quay site were located in remnant longleaf pine barren habitat within several hundred meters of the North Carolina border. Fernald (1938, 1940, 1941) first documented the unusual flora of both areas, which includes numerous species that are at or near their northern range limits and are rare in Virginia. Recent surveys by DNH zoologists and others are beginning to document the fauna of both areas. In addition to this report, some of these results will be presented in future papers in this journal.

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Gnathobleda litigiosa, an Austral Assassin Bug New to the Virginia Fauna (Heteroptera: Reduviidae)

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ABSTRACT

The assassin bug *Gnathobleda litigiosa* Stål, a species that rarely is collected in the United States, is reported from Virginia for the first time, representing a northern range extension from southeastern Georgia and the first record of the genus in the state.

Key words: *Gnathobleda*, Reduviidae, Virginia.

One almost certain way to increase the known fauna of any given region is to publish an account of that fauna that pretends some measure of completeness. The first author's recent synopsis of the assassin bugs of Virginia (Hoffman, 2006) treated 46 species known to occur, with the qualification that as many as ten more